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cont

- ~~(bb) comprising the nucleotide sequence as given in any one of SEQ ID NOs: 3, 33, 35, 37, 39 or 41;~~
- ~~(bc) comprising a nucleotide sequence hybridizing with the complementary strand of a nucleotide sequence as defined in (ba) or (bb) under stringent hybridization conditions;~~
- ~~(bd) comprising a nucleotide sequence encoding a protein having an amino acid sequence at least 40 % identical to the amino acid sequence encoded by the nucleotide sequence of (ba) or (bb);~~
- ~~(be) comprising a nucleotide sequence encoding at least the cyclin-like interacting domain of the protein encoded by the nucleotide sequence of any one of (ba) to (bd);~~
- (c) DNA sequences
  - ~~(ca) comprising a nucleotide sequence encoding at least the mature form of a protein (VB33) comprising the amino acid sequence as given in SEQ ID NO: 6;~~
  - ~~(cb) comprising the nucleotide sequence as given in SEQ ID NO: 5;~~
  - ~~(cc) comprising a nucleotide sequence hybridizing with the complementary strand of a nucleotide sequence as defined in (ca) or (cb) under stringent hybridization conditions;~~
  - ~~(cd) comprising a nucleotide sequence encoding a protein having an amino acid sequence at least 60 % identical to the amino acid sequence encoded by the nucleotide sequence of (ca) or (cb);~~
  - ~~(ce) comprising a nucleotide sequence encoding at least the domain binding to CDKs of the protein encoded by the nucleotide sequence of any one of (ca) to (cd);~~
- (d) DNA sequences
  - (da) (aa) comprising a nucleotide sequence encoding at least the mature form of a protein (VB89) comprising the amino acid sequence as given in SEQ ID NO: 8;
  - (db) (ab) comprising the nucleotide sequence as given in SEQ ID NO: 7;

- (de) (ac) comprising a nucleotide sequence hybridizing with the complementary strand of a nucleotide sequence as defined in (da) (aa) or (db) (ab) under stringent hybridization conditions of hybridization in 4X SSC at 65° C, followed by washing in 0.1X SSC at 65° C, or hybridization in 50% formamide, 4X SSC at 42° C, followed by washing in 0.1X SSC;
- (dd) (ad) comprising an a nucleotide sequence encoding a protein having an amino acid sequence at least 60 % identical to the amino acid sequence encoded by the nucleotide sequence of (da) (aa) or (ab) (db);
- (de) (ae) comprising a nucleotide sequence encoding at least the domain binding to CDKs of the protein encoded by the nucleotide sequence of any one of (da) (aa) to (ad) (dd); and
- (af) obtainable by screening an appropriate library under the stringent conditions recited in (ac) with a probe having at least 17 consecutive nucleotides of the sequence set forth in SEQ ID NO:7

(e) — DNA sequences

- (ea) — ~~comprising a nucleotide sequence encoding at least the mature form of a protein (VBD AHP) comprising the amino acid sequence as given in SEQ ID NO: 10;~~
- (eb) — ~~comprising the nucleotide sequence as given in SEQ ID NO: 9;~~
- (ec) — ~~comprising a nucleotide sequence hybridizing with the complementary strand of a nucleotide sequence as defined in (ea) or (eb) under stringent hybridization conditions;~~
- (ed) — ~~comprising an nucleotide sequence encoding a protein having an amino acid sequence at least 60 % identical to the amino acid sequence encoded by the nucleotide sequence of (ea) or (eb);~~
- (ee) — ~~comprising a nucleotide sequence encoding at least the domain binding to CDKs of the protein encoded by the nucleotide sequence of any one of (ea) to (ed);~~

(f) — DNA sequences

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cont
- ~~(fa) — comprising a nucleotide sequence encoding at least the mature form of a protein (VBDBP) comprising the amino acid sequence as given in SEQ ID NO: 12;~~
  - ~~(fb) — comprising the nucleotide sequence as given in SEQ ID NO: 11;~~
  - ~~(fc) — comprising a nucleotide sequence hybridizing with the complementary strand of a nucleotide sequence as defined in (fa) or (fb) under stringent hybridization conditions;~~
  - ~~(fd) — comprising an nucleotide sequence encoding a protein having an amino acid sequence at least 60 % identical to the amino acid sequence encoded by the nucleotide sequence of (fa) or (fb);~~
  - ~~(fe) — comprising a nucleotide sequence encoding at least the domain binding to CDKs of the protein encoded by the nucleotide sequence of any one of (fa) to (fd);~~
  - ~~(g) — DNA sequences~~
    - ~~(ga) — comprising a nucleotide sequence encoding at least the mature form of a protein (VBHSF) comprising the amino acid sequence as given in SEQ ID NO: 14;~~
    - ~~(gb) — comprising the nucleotide sequence as given in SEQ ID NO: 13;~~
    - ~~(gc) — comprising a nucleotide sequence hybridizing with the complementary strand of a nucleotide sequence as defined in (ga) or (gb) under stringent hybridization conditions;~~
    - ~~(gd) — comprising an nucleotide sequence encoding a protein having an amino acid sequence at least 60 % identical to the amino acid sequence encoded by the nucleotide sequence of (ga) or (gb);~~
    - ~~(ge) — comprising a nucleotide sequence encoding at least the domain binding to CDKs of the protein encoded by the nucleotide sequence of any one of (ga) to (gd);~~
    - ~~(h) — DNA sequences obtainable by screening an appropriate library under stringent conditions with a probe having at least 17 consecutive nucleotides of a nucleotide sequence of any one of SEQ ID NOs: 1, 3, 5, 7, 9, 11, 13, 15 to 33, 35, 37, 39, 41, 48, 49 or 53 to 57;~~

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Cmt.
- ~~(i) — DNA sequences comprising a nucleotide sequence encoding a fragment of a protein encoded by a DNA sequence of any one of (a) to (h), wherein said fragment is capable of interacting with a cell cycle protein; and~~
  - ~~(j) — DNA sequences, the nucleotide sequence of which is degenerate as a result of the genetic code to a nucleotide sequence of a DNA sequence as defined in any one of (a) to (i).~~

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- 2. (Withdrawn) A method for identifying and obtaining cell cycle interacting proteins comprising a two-hybrid screening assay wherein CDC2a or CDC2b as a bait and a cDNA library of a plant cell suspension as prey are used.
  - 3. (Withdrawn) The method of claim 2, wherein said CDC2a is CDC2aAt and CDC2b is CDC2bAt.
  - 4. (Canceled)
  - 5. (Previously amended) A nucleic acid molecule of at least 15 nucleotides in length hybridizing specifically with a DNA sequence of claim 1 or with a complementary strand thereof.
  - 6. (Previously amended) A vector comprising a DNA sequence of claim 1.
  - 7. (Original) The vector of claim 6 which is an expression vector wherein the DNA sequence is operatively linked to one or more control sequences allowing the expression in prokaryotic and/or eukaryotic host cells.
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- 8. (Currently amended) A host cell containing a vector of claim 6 or 7 or a DNA sequence of claim 1 or 4.
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- 9. (Original) The host cell of claim 8 which is a bacterial, insect, fungal, plant or animal cell.

10. (Previously amended) A method for the production of a cell cycle interacting protein or an immunologically active or functional fragment thereof comprising culturing a host cell of claim 8 under conditions allowing the expression of the protein and recovering the produced protein from the culture.

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11. (Currently amended) A cell cycle interacting protein or an immunologically active or functional fragment thereof encodable by a DNA sequence of claim 1 ~~or obtainable by the method of claim 2 or 3.~~

12. (Withdrawn) An antibody specifically recognizing the protein of claim 11 or a fragment or epitope thereof.

13. (Previously Amended) A method for the production of transgenic plants, plant cells or plant tissue comprising the introduction of a DNA sequence of claim 1, or a vector of claim 6 or 7 into the genome of said plant, plant cell or plant tissue.

14. (Original) The method of claim 13 further comprising regenerating a plant from said plant tissue or plant cell.

3.1  
15. (Currently Amended) A transgenic plant cell comprising a DNA sequence of claim 1 which is operably linked to regulatory elements allowing transcription and/or expression of the DNA sequence in plant cells ~~or obtainable according to the method of claim 13 or 14.~~

16. (Original) The transgenic plant cell of claim 15 wherein said DNA sequence or said vector is stably integrated into the genome of the plant cell.

17. (Previously amended) A transgenic plant or a plant tissue comprising plant cells of claim 15.

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18. (Currently amended) The transgenic plant of claim 17 in which plant cell division and/or growth is enhanced compared to the corresponding wild type plant and/or wherein the plant is less sensitive to environmental stress compared to the corresponding wild type plant.

19. (Previously Amended) A transgenic plant cell which contains stably integrated into the genome a DNA sequence of claim 1, or part thereof wherein the transcription and/or expression of the DNA sequence or part thereof leads to reduction of the synthesis of a cell cycle interacting protein in the cells.

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20. (Currently Amended) The plant cell of claim 19, wherein the reduction is achieved by an antisense, sense, ribozyme, co-suppression, dominant mutant effect and/or a knock out ~~mutan~~ mutant in the gene.

21. (Previously Amended) A transgenic plant or plant tissue comprising plant cells of claim 19 or 20.

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22. (Currently amended) The transgenic plant of claim 21 which displays a deficiency in plant cell division and/or growth compared to the corresponding wild type plant.

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23. (Currently Amended) Harvestable parts or propagation material of plants of ~~any one of~~ claims 17[,] or 18[,] ~~21 or 22~~ comprising plant cells of claim 15 or 16.

24. (Withdrawn) A regulatory sequence of a promoter regulating the expression of a nucleic acid molecule comprising the DNA sequence of any one of claim 1 or 4, said regulatory sequence being capable of conferring expression of a heterologous DNA sequence during various stages of the cell cycle.

25. (Withdrawn) A recombinant DNA molecule comprising the regulatory sequence of claim 24.

26. (Withdrawn) The recombinant DNA molecule of claim 25, wherein said regulatory sequence is operatively linked to a heterologous DNA sequence.
27. (Withdrawn) A host cell transformed with a regulatory sequence of claim 24 or a recombinant DNA molecule of claim 25 or 26.
28. (Withdrawn) A transgenic plant, plant tissue, or plant cell comprising the regulatory sequence of claim 24 or the recombinant DNA molecule of claim 25 or 26.
29. (Withdrawn) A method for the identification of an activator or inhibitor of cell cycle interacting proteins or their encoding genes comprising the steps of:
- (a) culturing a plant cell or tissue or maintaining a plant comprising a recombinant DNA molecule comprising a readout system operatively linked to a regulatory sequence of claim 24 in the presence of a compound or a sample comprising a plurality of compounds under conditions which permit expression of said readout system;
  - (b) identifying or verifying a sample and compound, respectively, which leads to suppression or activation and/or enhancement of expression of said readout system in said plant, plant cell, or plant tissue.
30. (Withdrawn) A method for identifying and obtaining an activator or inhibitor of cell division comprising the steps of:
- (a) combining a compound to be screened with a reaction mixture containing the cell cycle interacting protein of claim 11 and a readout system capable of interacting with the protein under suitable conditions which permit interaction of the protein with said readout system;
  - (b) identifying or verifying a sample and compound, respectively, which leads to suppression or activation of the readout system.
31. (Withdrawn) A method of producing a therapeutic agent comprising the steps of the method of claim 30 and synthesizing the activator or inhibitor obtained or identified in

step (b) or an analog or derivative thereof in an amount sufficient to provide said agent in a therapeutically effective amount to a patient.

32. (Withdrawn) A method of producing a plant effective agent comprising the steps of the method of claim 30 and synthesizing the activator or inhibitor obtained or identified in step (b) or an analog or derivative thereof in an effective amount sufficient to provide said agent in an effective amount suitable for the application in agriculture or plant cell and tissue culture.
33. (Withdrawn) A method of producing a therapeutic or plant effective composition comprising the steps of the method of claim 30 and combining the compound obtained or identified in step (b) or an analog or derivative thereof with a pharmaceutically acceptable carrier or with a plant cell and tissue culture acceptable carrier.
34. (Withdrawn) An activator or inhibitor of a cell division obtained by the method of any one of claims 30 to 32.
35. (Canceled)
36. (Canceled)
37. (Canceled)
38. (Canceled)
39. (Canceled)
40. (Canceled)
41. (Withdrawn) A method for improving the tolerance of plants towards suboptimal nutrient conditions, preferably the level of phosphate, by modulating PLP expression and/or activity.



42. (Withdrawn) A method for improving the growth of plants in normal conditions or suboptimal nutrient conditions, in particular levels of phosphate, by modulating PLP expression and/or activity.
43. (Withdrawn) A method for providing enhanced rate or frequency of seed germination comprising modulating PLP expression and/or activity.
44. (Withdrawn) Use of a PLP as a positive or negative selectable marker during transformation of plant cell, plant tissue or plant. procedures.
45. (Withdrawn) The use of claim 44, wherein selective agent is an antibiotic, preferably hygromycin.
46. (Withdrawn) The method of claim 45 wherein the antibiotic is hygromycin.

Please add the following claims:

47. (New) A method for using an isolated DNA molecule having the sequence set forth in SEQ ID NO:7 in marker assisted breeding, said method comprising:
- (a) transforming a plant cell with the DNA sequence of claim 1 in order to produce a transgenic plant comprising the sequence of claim 1;
- (b) cross fertilizing the transgenic plant of (a) with another plant or self fertilizing the transgenic plant of (a);
- (c) using the isolated DNA molecule having the sequence set forth in SEQ ID NO:7 as a probe in order to detect the DNA sequence of claim 1 in progeny of the cross or self fertilized plants of (b).

48. (New) A method for detecting the DNA molecule of claim 1 in a transgenic plant or progeny thereof, said method comprising using an isolated DNA molecule comprising the sequence set forth in SEQ ID NO:7 as a probe in order to detect the DNA sequence of claim 1 in said transgenic plant or progeny thereof.

49. (New) A method for detecting in a plant an endogenous gene encoding a cell cycle interacting protein wherein said cell cycle interacting protein binds to a CDK having a PPTALRE cyclin binding motif, said method comprising using an isolated DNA molecule comprising the sequence set forth in SEQ ID NO:7 as a probe in order to detect the endogenous gene.

50. (New) A method for the production of transgenic plants, plant cells, or plant tissue in which plant cell division and/or growth is enhanced compared to a corresponding wild type plant and/or wherein the plant is less sensitive to environmental stress compared to the corresponding wild type plant which comprises introducing the DNA molecule of claim 1, or a vector of claim 6 or 7 into the genome of said plant, plant cell, or plant tissue.